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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: David Wallman

Attorney Docket No.: SUN1P270/P4566

Application No.: 09/591,172

Examiner: SHAH, Niles R.

Filed: June 9, 2000

Group: 2127

Title: METHOD AND APPARATUS FOR  
IMPLEMENTING AN EXTENDED VIRTUAL  
MACHINE

Confirmation No.: 3517

CERTIFICATE OF MAILING

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Signed: \_\_\_\_\_

Sally Zumba

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Sir:

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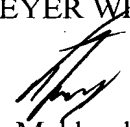
Change the attorney Docket No. SUN1P2/P4566 to -- **SUN1P270/P4566** --.

Enclosed is a copy of the Utility Patent Application Transmittal and also a copy of the first page of the specification, indicating the correct attorney docket number.

Since this is a Patent Office typographical error, no fee should be due. However, the Commissioner is authorized to charge any fees that may be due to Deposit Account 500388 (Order No. SUN1P270).

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP

  
R. Mahboubian  
Registration No. 44,891

P.O. Box 778  
Berkeley, CA 94704-0778  
(650) 961-8300

## FILING RECEIPT



\*OC00000005315546\*

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Patent and Trademark OfficeAddress: ASSISTANT SECRETARY AND  
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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/591,172	06/09/2000	2755	708	SUN1P2/P4566	7	21	3

22434  
BEYER WEAVER & THOMAS LLP  
P O BOX 130  
MOUNTAIN VIEW, CA 94042-0130

SUN1P270/P4566

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Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the PTO processes the reply to the Notice, the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

## Applicant(s)

David Wallman, Sunnyvale, CA ;

## Continuing Data as Claimed by Applicant

## Foreign Applications

If Required, Foreign Filing License Granted 08/10/2000

## Title

Method and apparatus for implementing an extended virtual machine

## Preliminary Class

709

Data entry by : MAY, MOLIKI

Team : OIPE

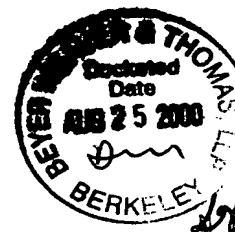
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**CERTIFICATE OF EXPRESS MAILING**

I hereby certify that this paper and the documents and/or fees referred to as attached therein are being deposited with the United States Postal Service on June 09, 2000 in an envelope as "Express Mail Post Office to Addressee" service under 37 CFR §1.10, Mailing Label Number EL631003207US, addressed to the Assistant Commissioner for Patents, Washington, DC 20231.

Carolyn Naegle  
Carolyn Naegle

Attorney Docket No.:

SUN1P270/P4566

First Named Inventor:

David Wallman

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**UTILITY PATENT APPLICATION TRANSMITTAL (37 CFR. § 1.53(b))**

Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231

☐ Duplicate for  
fee processing

Sir: This is a request for filing a patent application under 37 CFR. § 1.53(b) in the name of inventors:  
David Wallman

For: METHOD AND APPARATUS FOR IMPLEMENTING AN EXTENDED VIRTUAL MACHINE

**Application Elements:**

- ☒ 22 Pages of Specification, Claims and Abstract
- ☒ 07 Sheets of **formal** Drawings
- ☒ 02 Pages Combined Declaration and Power of Attorney

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**Accompanying Application Parts:**

- ☒ Assignment and Assignment Recordation Cover Sheet (recording fee of \$40.00 enclosed)
- ☐ 37 CFR 3.73(b) Statement by Assignee
- ☐ Information Disclosure Statement with Form PTO-1449
  - ☐ Copies of IDS Citations
- ☐ Preliminary Amendment
- ☒ Return Receipt Postcard
- ☐ Small Entity Statement(s)
- ☐ Other:



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Fee Calculation (37 CFR § 1.16)

	(Col. 1) NO. FILED	(Col. 2) NO. EXTRA	SMALL ENTITY RATE FEE	OR	LARGE ENTITY RATE FEE
BASIC FEE			\$345 \$		\$690 \$690
TOTAL CLAIMS	21 -20 =	01	x 9 = \$	OR	x 18 = \$ 18
INDEP CLAIMS	03 -03 =	00	x 39 = \$	OR	x 78 = \$ 78
[ ] Multiple Dependent Claim Presented			\$130 = \$	OR	\$260 = \$
* If the difference in Col. 1 is less than zero, enter "0" in Col. 2.			Total \$	OR	Total \$786

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☒ The Commissioner is authorized to charge any fees beyond the amount enclosed which may be required, or to credit any overpayment, to Deposit Account No. 50-0388 (Order No. SUN1P270).

General Authorization for Petition for Extension of Time (37 CFR §1.136)

☒ Applicants hereby make and generally authorize any Petitions for Extensions of Time as may be needed for any subsequent filings. The Commissioner is also authorized to charge any extension fees under 37 CFR §1.17 as may be needed to Deposit Account No. 50-0388 (Order No. SUN1P270).

☒ Please send correspondence to the following address:

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Date: June 9, 2000

Peggy A. Su  
Peggy A. Su  
Registration No. 41,336



## Method and Apparatus for Implementing an Extended Virtual Machine

Invented By:  
David Wallman

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### BACKGROUND OF THE INVENTION

#### 1. Field of Invention

The present invention relates generally to computing systems. More particularly, the present invention relates to a virtual machine on which an application may run at substantially any given time.

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#### 2. Description of the Related Art

As the use of object-based computing systems increases, the use of virtual machines which run with respect to computing systems is becoming more prevalent. A virtual machine may generally be considered to be self-contained operating environment that functions as if it were a separate computing system. By way of example, a virtual machine may be software which acts as an interface between a computer program, *e.g.*, compiled binary code, and a processor which is arranged to execute instructions specified by the computer program.

In general, a virtual machine includes an engine which enables an application or, more specifically, program codes, to be executed by computer hardware. Standard virtual machines engines include components such as an interpreter and a class loader, as will be understood by those skilled in the art. An interpreter perform operations defined byte codes as each byte code is read into the interpreter. A class loader loads classes needed to complete a particular job using the virtual machine.

Virtual machines only support the execution of one application per virtual machine process. In other words, when more than one application is to be executed substantially concurrently, then more than one virtual machine must be started such that each application has its own instance of a virtual machine, *i.e.*, only one application may be executed per virtual machine process. A job is started on a virtual machine for each application. The initialization of a virtual machine generally causes significant performance penalty. In particular, the loading of all classes related to a